

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:

Gregory Huber, T. et al.

Application No.: 10/730,214

Confirmation No.: 2468

Filed: December 25, 2003

Art Unit: 1765

For: POLYMERIC DISPERSANTS AND
DISPERSIONS CONTAINING SAME

Examiner: G. Listvoyb

APPEAL BRIEF

As required under § 41.37(a), this brief is filed within two months of the Notice of Appeal filed in this case on December 8, 2010, and is in furtherance of said Notice of Appeal.

This brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.2:

- I. Real Party In Interest
- II. Related Appeals and Interferences
- III. Status of Claims
- IV. Status of Amendments
- V. Summary of Claimed Subject Matter
- VI. Grounds of Rejection to be Reviewed on Appeal
- VII. Argument
- VIII. Claims
- Appendix A Claims
- Appendix B Evidence
- Appendix C Related Proceedings

I. REAL PARTY IN INTEREST

The real party in interest for this appeal is:

Sun Chemical Corporation.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There are 23 claims pending in application.

B. Current Status of Claims

1. Claims canceled: 2-10
2. Claims withdrawn from consideration but not canceled: none
3. Claims pending: 1 and 11-32
4. Claims allowed: none
5. Claims rejected: 1 and 11-32

C. Claims On Appeal

The claims on appeal are claims 1 and 11-32

IV. STATUS OF AMENDMENTS

Applicant did not file an amendment after Final Rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Dispersants can be used to impart a low viscosity to colorant dispersions. This permits more colorant to be present, while the resulting very concentrated dispersions which can be satisfactorily handled and dispersed in an end use vehicle. The higher colorant content gives a printing ink manufacturer greater formulating latitude, permitting the production of a greater variety of printing inks, as well as reduction in costs and lower inventory volumes.

The maximum amount of colorant in a dispersion is a function of the resulting viscosity of the dispersion. The viscosity of the dispersion increases exponentially as the colorant concentration increases linearly. When the viscosity becomes too high, a colorant concentrate can no longer be dispersed satisfactorily or be easily handled during the ink manufacturing process. In addition, the ink system experiences increasing heat build up due to frictional forces during the dispersion process as the colorant concentration and viscosity increase. This is detrimental to the quality of the ink because the increase in temperature causes degradation of certain colorants.

Colorant dispersions with more than 45 wt. % pigment and viscosities less than 150 Pa.s have been described in the prior art. However, they have problems when used in lithography. Such problems include over-emulsification (the ink takes up excessive fountain solution causing poor ink transfer), blanket piling, high dot gain, misting,

scumming (inability of fountain solution to keep the non-image area of the printing plate clean), and feedback (contamination of fountain solution during the printing process resulting in poor final print quality).

The claimed invention is based on the discovery of a dispersant that lowers the viscosity of highly concentrated non-polar colorant dispersions. It is a polyalkyl benzimide polymeric reaction product of a polyisobutylene amine with 1,2,4-benzenetricarboxylic anhydride, in which the chain length of the polyisobutylene amine is such as to make the reaction product compatible with a non-polar colorant dispersion. The dispersant and various dispersions containing it are the subject of the appealed claims.

One non-limiting illustrative mapping of the independent claims is as follows:

1. A polyalkyl benzimide polymeric dispersant consisting of the reaction product of a polyisobutylene amine with 1,2,4-benzenetricarboxylic anhydride (page 4, lines 29-32), wherein the chain length of the polyisobutylene amine is such as to make the reaction product compatible with a non-polar colorant dispersion (page 5, line 23 to page 6, line 13).
22. A polyalkyl benzimide polymeric dispersant consisting of the liquid (page 7, line 13) reaction product of a polyisobutylene amine with 1,2,4-benzenetricarboxylic anhydride (page 4, lines 29-32), wherein the chain length of the polyisobutylene amine is such that a non-polar colorant dispersion in which the colorant concentration is about 40 to 90% and the reaction product concentration is about 1 to 15% has a viscosity of less

than about 150Pa.s and a relative interfacial tension drop of less than about 1.5 (page 6, lines 15-18; page 7, lines 1-3).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1 and 11-21 were rejected under 35 U.S.C. § 103 over Winter (WO2002/0234840 using US 6,821,335 as a translation) in combination with Patil (5,633,326).

VII. ARGUMENT

Introduction

Colorant dispersions are desired to have a low viscosity. The reason is that lowering the viscosity permits more colorant to be present, permitting one to obtain very concentrated dispersions which can be satisfactorily handled and dispersed into a composition containing the balance of the end use composition. Such dispersions with high colorant content provides a number of advantages to, for instance, a printing ink manufacturer, such as greater formulation latitude which permits the production of a greater variety of printing inks, cost reductions and lower inventory volumes.

The controlling factor for colorant concentration in a dispersion is the resulting viscosity of the dispersion. The reason is that the viscosity of the dispersion increases exponentially as the colorant concentration increases linearly. When the viscosity becomes too high, a colorant concentrate can no longer be dispersed satisfactorily nor

can it be easily handled during the ink manufacturing process. In addition, the ink system experiences increasing heat build up due to frictional forces as the colorant concentration and resultant viscosity increases during the dispersion process. This can be detrimental to the quality of the ink because the increase in temperature causes degradation of certain colorants.

Colorant dispersions with more than 45 wt. % pigment and viscosities less than 150 Pa.s have been described in the prior art. Nevertheless, the dispersions have been known to cause problems when they are used in lithography applications. Such problems include over-emulsification (the ink takes up excessive fountain solution causing poor ink transfer), blanket piling, high dot gain, misting, scumming (inability of fountain solution to keep the non-image area of the printing plate clean), and feedback (contamination of the fountain solution during the printing process resulting in poor final print quality).

The inventors discovered a new dispersant that lowers the viscosity of highly concentrated non-polar colorant dispersions, while preserving a high colorant concentration. It is a polyalkyl benzimide polymeric reaction product of a polyisobutylene amine with 1,2,4-benzenetricarboxylic anhydride, in which the chain length of the polyisobutylene amine is such as to make the reaction product compatible with a non-polar colorant dispersion environment, for example, an oil-based environment. The amine's chain length is at least 50 carbons since shorter lengths are not suited for non-polar systems. Since there is no *in hoc verba* recitation of this chain length in the written description, alternate language is used in the appealed claims.

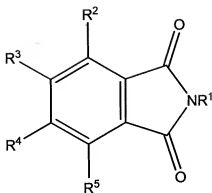
The dispersant and various dispersions containing it are the subject of the appealed claims. All are admittedly new but the rejection asserts they are obvious. The discussion which follows will show that the virtually unlimited scope of the cited art does not render the claimed dispersant or dispersions obvious, that the combination of references is not proper, and that the dispersant properties of the claimed material are surprising, unexpected and unpredictable.

The References Do Not Suggest The
Claimed Compound Even If Improperly Combined

In this section, it will be shown that Winter in view of Patil does not teach or suggest the claimed reaction product even if they are, as they have been, improperly combined without any reason to do so.

The Final Rejection acknowledges that neither Winter nor Patil alone teach or suggest the claimed reaction product. To cobble together basis for a rejection, the rejection has extracted isolated material from each of the two references without any reason to do so, and has pasted them on the template of the instant claims. That, of course, is improper and not permissible.

Winter's cyclic imides are compounds of general formula 1.



They are prepared by reacting a cyclic anhydride with a fatty amine (column 2, lines 44-48). The scope of general formula 1 is so large as to be virtually unlimited.

More particularly, the number of compounds falling within the scope of general formula 1 is immense, numbering far into the billions, if not more. This is apparent from the fact that even if the expansion of the number of possibilities as a result of the branching and cyclic analogs and possible substitutions is ignored, R¹ can still be 40 different entities, and each of R² through R⁵ can be 259 possible entities (10 alkyls, 10 alkoxys, at least 3 halogens, 11 OR⁶ since R⁶ (and R⁷) can be 11 possible moieties), 49 NR⁶R⁷, 11 COOR⁶, 49 CONR⁶R⁷, 49 NR⁶COR⁷, 49 SO₂NR⁶R⁷, and at least 16 SO₂M (since M is any cation having a valence of 1-3, NO₂, CN, and CF₃). Since R² through R⁵ can be the same or different, there are 120 possible combinations even before one considers the possible identity of each of the 259 entities. Each of the R¹ groups can be substituted by up to 5 entities and each of the 5 entities is selected from 20 possibilities (6 alkyl groups, 6 alkoxy groups, 5 aryl groups, hydroxy, carboxy and sulfo), thereby raising the number of R¹ possibilities to 140.

Looking solely at the cyclic portion of general formula 1, the Final Rejection states on page 3 that in the event that R^2 , R^4 and R^5 are each hydrogen, R^3 is COOR^6 and R^6 is hydrogen, the resulting imide would be “based on” trimellitic acid. But the Final Rejection does not make any attempt to explain what would lead a person skilled in the art to make all of these simultaneous selections. Even if Winter’s stated preferences are ignored, there is no disclosure in this reference which suggests the skilled person make all of these choices at the same time.

Of course, ignoring the fact that Winter actually teaches away from these selections would be improper. In that regard, Winter provides guidance about what selections should preferably be made at column 2, lines 37-42. That guidance is that R^3 should be COOMe and not be COOH . In an attempt to sidestep Winter’s teaching away, the Final Rejection states page 9 that there is no proviso in Winter so limiting R^3 . That observation may be literally correct, but only because the statement includes the word “proviso”, but it is contextually wrong since Winter explicitly states R^3 preferably should not be COOH (as it would have to be to realize something “based on” trimellitic acid).

The only possible reason to make the proposed simultaneous selections of six different variables is that those selections are what the appealed claims require. However, that approach involves the use of hindsight to force fit Winter’s disclosure into the template of the appealed claims. Individually, the use of hindsight and the use of the claims as a template is improper. *MPEP 2142*; *In re Fritch*, 23 USPQ2d 1780 (Fed. Cir. 1992); *Ex parte Haymond*, 41 USPQ2d 1217 (BPAI 1996). Here, two impermissible approaches are being combined.

The fact that Winter's general formula 1 can be manipulated (using hindsight) to make something "based on" trimellitic acid means nothing more than general formula 1 constitutes a very large genus of compounds. But a genus is not a disclosure of every unnamed species. *In re Baird*, 29 USPQ2d 1550 (Fed. Cir. 1994); *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 9 USPQ2d 1962, 1970 (Fed Cir. 1989). To avoid the import of this, the Final Rejection states that a disclosed species can be anticipated no matter how many other species are disclosed. This statement is a non-sequitur since a species giving rise to the something "based on" trimellitic acid is not disclosed anywhere in Winter. This fact is not only self-evident but also is confirmed by both the lack of either identifying any passage in the reference or making an anticipation rejection.

The fact that one of more than a billion possibilities may "based on" trimellitic acid merely means that, at best, general formula 1 is sufficiently broad (i.e., generic) as to encompass trimellitic acid imides, in addition to billions of other possibilities. There is no reason to select one compound which, although within the enormous scope of Winter's cyclic imides, is not disclosed therein.

Turning attention to the other moiety (R¹) in Winter's reaction product of a cyclic anhydride with a fatty amine, the Final Rejection acknowledges on page 3 that no reaction product containing polyisobutylene (PIB) amine is disclosed but then observes on page 4 that PIB is "encompassed" and "may be" included within the scope of Winter's disclosure. The Final Rejection also acknowledges in the last paragraph on page 9 that R¹ can also be virtually any other unsaturated or saturated hydrocarbon. However, the rejection never bothers to even propose any reason to select

polyisobutylene as opposed to any of these other hydrocarbons. As in the case of the cyclic moiety portion of general formula 1, the only possible reason for the selection is that this is what the appealed claims require, and uses hindsight to force fit Winter's disclosure into the template of the appealed claims.

An obviousness rejection based on making many selections, like the one under review here, requires a reason to make all of the required choices simultaneously. No such reason is proposed in this rejection. As a result, what is present here is a series of hindsight selections made to shoehorn Winter's disclosure into the claims under consideration, none of which fairly reflects what would be understood by a person skilled in the art. Apropos is the statement in *Bayer Schering Pharma AG v. Barr Laboratories Inc.*, 91 USPQ2d 1569, 1572-73 (Fed. Cir. 2009) that:

[A]n invention would not have been obvious to try when the inventor would have had to try all possibilities in a field unreduced by direction of the prior art. When "what would have been 'obvious to try' would have been to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful" an invention would not have been obvious. *O'Farrell*, 853 F.2d at 903. This is another way to express the *KSR* prong requiring the field of search to be among a "finite number of identified" solutions. 550 U.S. at 421; see also *Procter & Gamble*, 566 F.3d at 996; *Kubin*, 561 F.3d at 1359. It is also consistent with our interpretation that *KSR* requires the number of options to be "small or easily traversed. *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1364 (Fed. Cir. 2008)."

Accord, *PharmaStem Therapeutics v. ViaCell Inc.*, 83 USPQ2d 1289, 1305 (Fed. Cir. 2007).

Winter presents a disclosure which requires the skilled person not only to try all of the possibilities in a field, but also to intentionally ignore the direction to reduce the available choices so as to exclude a tricarboxylic reactant, such as used in the claimed invention. That means the invention would not have been obvious. *Bayer Schering Pharma AG*, *supra*; *PharmaStem Therapeutics*, *supra*; *O'Farrell*, *supra*.

MPEP 2143(E) points out that an "obvious to try" approach, like that also being used here, can establish obviousness only where there was a finite number of identified, predictable solutions, with a reasonable expectation of success. In the MPEP Example 1 describing how this is to be applied, there were only fifty-three (53) possible choices. In *Ex parte A*, 17 USPQ2d 1716 (BPAI 1990), the maximum number of possible combinations was 47, *Id.* at 1718. Review of precedent confirms that this order of magnitude is what was meant by a "finite" number of possibilities. But that amount pales in contrast to the number involved here, which reaches far into the billions. That does not meet the requirement for a finite number of identified, predictable solutions, with a reasonable expectation of success. Winter's disclosure does not satisfy the "obvious to try" requirements for establishing obviousness.

The Federal Circuit has also observed that "a disclosure of millions of compounds does not render a claim to three compounds obvious, particularly when that disclosure indicates a preference leading away from the claimed compounds", *In re Baird*, 29 USPQ2d 1550, 1552 (Fed. Cir. 1994). If 3 out of a million is not obvious, 1 out of a billion is certainly not obvious. Here, the number of combinations "encompassed" by Winter is immense, numbering far in excess of one billion, if not running into

trillions or more, and Winter also indicates a preference leading the art away from the invention by stating a preference for R³ to be COOMe. There must be some guidance in the reference (or elsewhere) which would lead one skilled in the art to what is “one in a billion”. But there is none here.

Further, given the fact that the number of combinations and permutations falling within the scope of the Winter disclosure is immense, it constitutes, at the very best, a shotgun disclosure. This Board has observed that “the likelihood of producing a composition such as here claimed from a disclosure such as shown by the ...patent [disclosing a very great number of permutations] would be about the same as the likelihood as discovering the combination of a safe from a mere inspection of the dials thereof.” *Ex parte Garvey*, 41 USPQ 583, 584 (emphasis in original), quoted with approval in *In re Luvisi*, 144 USPQ 646 (CCPA 1965). A shotgun disclosure does not guide the skilled person to a specific composition so as to make that composition obvious, *Ex parte Strobel*, 160 USPQ 352 (Bd. App. 1968), *In re Baird*, 29 USPQ at 1552 (3 out of millions of possibilities compounds is not obvious). The rule that the ability to reconstruct a composition without guidance or a reason to make selections is inadequate under Section 103, *Ex parte Levengood*, 28 USPQ2d 1300 (BPAI 1993), applies with even more force when a shotgun disclosure is involved. The Supreme Court decision in *KSR*, the cases decided since that decision, and the revision of the MPEP in light of the case law, have not changed this.

It will be appreciated from the foregoing that the Winter patent has many major deficiencies with respect to the claims being rejected. It provides no *prima facie*

basis for contending anything claimed in the present application is obvious. Not only does the Patil fail to remedy the deficiencies of Winter, it actually reinforces them.

Patil relates to polymers which are made by grafting aromatic N-containing monomers, such as aniline, onto, *inter alia*, an ashless dispersant such as polyisobutylene (PIB) succinimide (column 3, lines 28-35). The rejection focuses on the PIB portion of the polyisobutylene succinimide dispersant while ignoring this dispersant is derived from succinic acid, which is a dicarboxylic acid, a fact actually reinforces Winter's stated preference and guidance for using dicarboxylic acid derived materials. In contrast, the dispersant of the present invention is derived from a tricarboxylic acid entity. It is, of course, not proper to ignore any teaching in Patil which does not support the rejection, *In re Hedges*, 228 USPQ 685, 687 (Fed. Cir. 1986)(quoting "It is impermissible within the framework of section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art" from *In re Wesslau*, 147 USPQ 391, 393 (CCPA 1965)). Here, both Patil and Winter teach away from a material containing a tricarboxylic acid entity.

Further, Patil does not attribute dispersant activity to the polyisobutylene portion of the polyisobutylene succinimide. There is, therefore, no reason to deconstruct the polyisobutylene succinimide and selectively combine one fragment of that compound with something else. Moreover, there is no valid reason to consult Patil in the first instance, as discussed further in the next section of this Brief.

The appealed claims recite that the chain length of the polyisobutylene amine reactant is such as to make the resulting reaction product compatible with a non-polar colorant dispersion environment, for example, an oil-based environment. This expression was used because there is no *in hoc verba* for reciting that the chain length was at least 50 carbons, and not, as contended in the Final Rejection, because compatibility is not readily understood by the skilled artisan. Shorter lengths would not make the reaction product compatible with non-polar systems although they would provide compatibility with polar systems, such as those of Winter. The Final Rejection tries to improve the relevance of Winter by stating that the "Examiner believes that [Winter's] alkyl chain of up to 30 carbons is hydrophobic enough to provide such compatibility." That attempt should be dismissed because it is improper to express a personal opinion without providing any factual basis for the opinion, and also because it is irrelevant in that the appealed claims recite that the chain length makes the reaction product, not merely the alkyl chain, compatible.

As shown above, Winter in view of Patil, even if properly combined (which they are not), fails to make the dispersant of appealed claim 1 obvious. It also fails to render the dispersants and compositions of the other claims obvious. Therefore, the appeal rejection is seen to be untenable even before considering whether the references are properly combined and/or the unpredictable properties of the claimed dispersant make it unobvious.

Combining Winter And Patil Is Improper

The Federal Circuit has made clear that, although there is no restrictions on the source of a reason to combine references, there still must be a reason to do so. No such reason exists here. Neither reference teaches or suggests any dispersant useful in a non-polar colorant dispersion. As a result, there is no reason to combine Winter and Patil to construct a dispersant for such use in the first instance.

Winter discloses an aqueous colorant composition while Patil mentions ashless dispersants such as polyisobutylene succinimide exist. To justify the combination, the Final Rejection on page 5 relies on Patil as teaching at column 24, line 45 that "the above polymer has very good dispersant properties in a wide variety of environment", and that PIB possesses antioxidant properties due to its t-butyl group. This reliance is misplaced. The "polymer" being referenced is not polyisobutylene succinimide but instead can be a graft modification of it, the next sentence in the reference itself (as well as the immediately preceding paragraph) identifies the environment as lubricating oil or fuels, and Patil is linking antioxidant properties to the graft polymer and not to PIB or even the PIB succinimide of which PIB is a fragment. There is nothing in these or any other portion of Patil's disclosure which teaches, suggests or even hints that any fragment of a material disclosed therein can impart dispersant properties to a colorant or in a polar dispersion, much less than that there is any possibility an isolated polyisobutylene moiety extracted from the polyisobutylene succinimide ashless dispersant might have some value if substituted for a moiety in some different ingredient in a polar colorant dispersion.

There is no reason to attempt to modify anything in Winter's imide or its aqueous (and hence polar) system by Patil. The combination is improper.

**The Properties Of The Claimed Compound
Are Unexpected And Unpredictable**

The reaction product of the present invention has excellent dispersing properties for a colorant used in non-polar systems, such as for example, oil-based printing inks. It can, in relatively small quantities, cause a highly concentrated (40% or more), non-polar colorant dispersion to have a viscosity of less than about 150 Pa.s and a relative interfacial tension drop of less than about 1.5. This property is surprising and unexpected. As discussed below, neither Winter nor Patil contain any suggestion that a cyclic material could be used as a dispersant in a highly concentrated non-polar colorant dispersion. As a result, neither reference (or the combination of them) can provide any basis for predicting whether or not a cyclic material would be a dispersant for highly concentrated non-polar colorant dispersions.

More particularly, while Winter does teaches aqueous pigment dispersions in which a cyclic imide is present, the reference teaches that the compounds with dispersant activity are nonionic surfactants such as polyphenol/fatty acid ethoxylates (see col. 7, lines 3-4). There is not even the slightest hint that Winter's cyclic imide has any dispersant properties whatsoever. As the reference's title (Phthalic Acid Imides As Synergists For Improving The Properties Of Aqueous Pigment Preparations) makes clear, and its working example show, the Winter cyclic imide is a synergist for other

ingredients in the polar dispersions, such as the nonionic dispersants, but there is no suggestion that the imide itself has any dispersant activity on its own.

While the Final Rejection continues to characterize Winter's cyclic imide as a "pigment dispersant" (page 2), Appellant has challenged that characterization again and again by stating that there was no suggestion of cyclic imide dispersant activity in this reference, thus inviting an identification where such activity is indicated in Winter. At one time, the very first sentence at column 1, lines 5-6 was proposed as the basis of the contention, but that sentence only states that Winter's invention "is situated in the field of aqueous pigment preparations". That does not say or suggest that the imide has any dispersant properties, particularly since the only use proposed in Winter is as a synergist for something which does have dispersant properties. The Final Rejection does not even try to point to any basis suggesting cyclic imide dispersant activity in Winter. There is none.

Further, Winter's dispersions are aqueous (col. 3, lines 17-25 and col. 4, line 15), and hence are polar. Even if Winter suggested its cyclic imide had any dispersant properties, and it contains no such suggestion, there would be no indication it could be used in a non-polar environment.

Patil mentions ashless dispersants, i.e., a material for use in a fuel or lubricating oil, and contains no reference to any colorant composition. While the Final Rejection asserts on page 5 that Patil teaches at column 24, line 45 that the polymer disclosed therein has good dispersant properties in a "wide variety of environment", the "polymer" is at best a graft modification of an ashless dispersant and the

environment is lubricating oil or fuels. There is nothing in that sentence or any other portion of the Patil disclosure which teaches, suggests or even hints that a polyisobutylene succinimide ashless dispersant can act as a dispersant for a colorant, much less that any possibility that should any polyisobutylene moiety be separated from the polyisobutylene succinimide, it might have some value if substituted for a moiety in an unrelated material in a colorant-containing polar dispersion. Like Winter, Patil does not give the skilled person information about dispersant activity in a non-polar colorant dispersion.

Nothing in the art teaches or even suggests there was even a vague possibility that the reaction product of the present invention has dispersing properties for a colorant-containing non-polar dispersion system, such as for example, oil-based printing inks. The fact that this reaction product has any dispersant properties at all is entirely unpredictable. That it has excellent dispersing properties for a colorant in non-polar dispersion systems is even more unpredictable.

The unpredictable properties reinforce the conclusion that the claimed invention is unobvious.

Conclusion

The Final Rejection should be reversed.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto as Appendix A.

Dated: February 1, 2011

Respectfully submitted,

By 
Edward A. Meilman

Registration No.: 24,735
DICKSTEIN SHAPIRO LLP
1633 Broadway
New York, New York 10019-6708
(212) 277-6500
Attorney for Applicant

APPENDIX A

Claims Involved in the Appeal of Application Serial No. 10/730,214

1. A polyalkyl benzimide polymeric dispersant consisting of the reaction product of a polyisobutylene amine with 1,2,4-benzenetricarboxylic anhydride, wherein the chain length of the polyisobutylene amine is such as to make the reaction product compatible with a non-polar colorant dispersion.

11. A colorant dispersion non-polar combination comprising at least about 40 wt.% of a colorant and the polyalkyl benzimide dispersant of claim 1.

12. The colorant dispersion of claim 11 having a viscosity of less than about 150 Pa.s.

13. The colorant dispersion of claim 11 wherein said colorant is selected from the group consisting of organic pigments, inorganic pigments, dyes and carbon black.

14. The colorant dispersion of claim 13 wherein said colorant is a laked organic pigment.

15. The colorant dispersion of claim 14 wherein said laked organic pigment is selected from the group consisting of beta naphthol laked pigments, 2-hydroxy-3-naphthoic acid laked pigments, naphthol laked pigments, and naphthalene sulfonic acid laked pigments.

16. The colorant dispersion of claim 14 wherein said laked organic pigment is selected from the group consisting of Pigment Red 49, Pigment Red 49:1, Pigment Red 49:2, Pigment Red 50:1, Pigment Red 51, Pigment Red 53, Pigment Red 53:1, Pigment, Red 53:3, Pigment Red 68, Pigment Orange 16, Pigment Orange 17:1, Pigment Orange 46, Red 48:1, Pigment Red 48:2, Pigment Red 48:3, Pigment Red 48:4, Pigment Red 48:5, Pigment Red 52:1, Pigment Red 52:2, Pigment Red 57:1, Pigment Red 58:2, Pigment Red 58:4, Pigment Red 63:1, Pigment Red 63:2, Pigment Red 64, Pigment Red. 64:1, Pigment Red 200, Pigment Brown 5, Pigment Red 151, Pigment Red 237, Pigment Red 239, Pigment Red 240, Pigment Red 243, Pigment Red 247, Pigment Yellow 104, Pigment Orange 19, Pigment Red 60, Pigment Red 66, and Pigment Red 67.

17. The colorant dispersion of claim 11 wherein 65 wt.% of colorant is present.

18. The colorant dispersion of claim 11 wherein 1 wt.% to about 15 wt.% of said dispersant is present.

19. The colorant dispersion of claim 11 wherein 10 wt.% of said dispersant is present.

20. A printing ink composition comprising the pigment dispersion of claim 11.

21. A printing ink composition of claim 20 wherein the printing ink is selected from the group consisting of lithographic and gravure printing ink.

22. A polyalkyl benzimide polymeric dispersant consisting of the liquid reaction product of a polyisobutylene amine with 1,2,4-benzenetricarboxylic anhydride, wherein the chain length of the polyisobutylene amine is such that a non-polar colorant

dispersion in which the colorant concentration is about 40 to 90% and the reaction product concentration is about 1 to 15% has a viscosity of less than about 150Pa.s and a relative interfacial tension drop of less than about 1.5.

23. A colorant dispersion non-polar combination comprising at least about 40 wt.% of a colorant and the polyalkyl benzimide dispersant of claim 22.

24. A colorant dispersion non-polar combination comprising at least about 45 wt.% of a colorant and the polyalkyl benzimide dispersant of claim 22.

25. The colorant dispersion of claim 23 wherein said colorant is selected from the group consisting of organic pigments, inorganic pigments, dyes and carbon black.

26. The colorant dispersion of claim 23 wherein said colorant is a laked organic pigment.

27. The colorant dispersion of claim 23 wherein 65 wt.% of colorant is present.

28. The colorant dispersion of claim 23 wherein 1 wt.% to about 15 wt.% of said dispersant is present.

29. The colorant dispersion of claim 23 wherein 10 wt.% of said dispersant is present.

30. A printing ink composition comprising the pigment dispersion of claim 23.

31. A printing ink composition of claim 30 wherein the printing ink is selected from the group consisting of lithographic and gravure printing ink.

32. A colorant dispersion non-polar combination comprising at least about 45 wt.% of a colorant and the polyalkyl benzimide dispersant of claim 1.

APPENDIX B

No evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

APPENDIX C

No related proceedings are referenced in II. above, hence copies of decisions in related proceedings are not provided.